

File created (2/2/2016). This is not the final version of record. The following article was published in the *Journal of Visual Impairment & Blindness (JVIB)*, 110, 399-411. The final version of record can be found at <http://www.jvib.org>.

Needs and Challenges of Seniors with Dual Sensory Loss

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### **Abstract**

*Introduction:* The purpose of this study was to identify the needs and challenges of seniors with dual sensory loss (combined hearing and vision loss) and to determine priorities for training family members, community service providers, and professionals who work with them.

*Methods:* Individuals ( $N=131$ ) with dual sensory loss between the ages of 55 and 99 participated in a survey designed to collect information about their most important needs, challenges encountered associated with sensory losses, and training needs of people who interact with them. Results were analyzed with descriptive statistics and comparisons were made between persons with early and later onset of sensory losses.

*Results:* The most commonly identified needs were transportation, training to use technology, assistance with errands, and improved communication. Medical providers were identified as the service providers that most need training about dual sensory loss. A majority of respondents thought their local community members, friends, and family also need education. Some differences were noted based on age of onset of sensory losses.

*Discussion:* Needs differed by age of onset group: needs of participants with early onset of one or both sensory losses focused on transportation and training to use technology, while needs for those with later onset focused on information about devices to improve hearing/vision and better ability to communicate with family.

*Implications for practitioners:* Training to use technology is an important area of need that may not always be addressed for this population by service providers, but it may contribute to overall improved quality of life as it has the potential to improve communication options and reduce feelings of isolation. Healthcare providers are an important group to target for education regarding how to interact with people with dual sensory loss.

### **Needs and Challenges of Seniors with Dual Sensory Loss**

Dual sensory loss, defined as a combined impairment in hearing and vision, increases significantly as people age. Estimates of the number of older persons who experience dual sensory loss have varied widely based on method used to measure hearing and vision loss and age of the population studied (Schneider et al., 2011). Caban et al. (2005), utilizing National Health Interview Survey data, documented a 7.3% prevalence rate of self-reported dual sensory loss for those aged 65 to 79 and a 16.6% prevalence rate for those aged 80 and older. The prevalence of dual sensory loss, when measured rather than self-reported, is much lower: less than 1% for those aged 50 to 69, 2.2% for persons aged 70 to 79, and 11.3% for persons aged 80 and older (Swenor, Ramulu, Willis, Friedman, & Lin, 2013). As both hearing and vision loss are more likely to occur in older ages, dual sensory loss is expected to increase in the coming years with the aging of the population and the increasing life span.

Perhaps because of the recognition of an increase in dual sensory loss due to these factors, empirical research about older adults with dual sensory loss has increased in recent years, with research primarily focusing on depression/mental health issues, activity limitations, or adjustment (e.g., Brennan, Su, & Horowitz, 2006; Chou, 2008; Fischer et al., 2009; Kiely, Anstey, & Luszcz, 2013; McDonnall, 2009, 2011). The majority of these publications have involved the use of large national databases, but little research has been conducted directly with older adults who experience dual sensory loss to determine their experiences and needs.

Most seniors experience some common needs associated with aging, such as safe and convenient transportation, acceptance and respect, a sense of usefulness, social opportunities, and access to good health care services (Brossoie et al., 2010). Older adults who experience dual sensory loss face many challenges and may experience some unique needs related to their

sensory losses. A previous study conducted by the authors that involved surveys with 406 older adults with combined hearing and vision loss identified challenges (i.e., communication difficulties, social isolation, adjustment to living with vision and hearing loss, depression, difficulty with activities of daily living) and needs for this population (i.e., assistive technology, access to medical services) (Authors). Based on a review of the literature, Schneider et al. (2011) determined that persons with dual sensory loss exhibit a tendency for reduced communication and well-being that consequently results in isolation, depression, dependence, increased mortality, and cognitive impairment. Given the complexity of the needs of individuals with dual sensory loss, multidisciplinary assessment and intervention are recommended (Heine & Browning, 2002). However, it is important for professionals to participate in interdisciplinary training to achieve full understanding of the impact of the dual sensory loss as well as to integrate service delivery strategies (Saunders & Echt, 2007).

### **Purpose of Study**

The purpose of this study was to identify needs of and challenges experienced by older people who have dual sensory loss to help determine priorities for training family members, community service providers, and professionals who work with them. The study included persons 55 years and older who have dual sensory loss. Persons with vision loss are eligible for services from the Independent Living Services for Older Individuals who are Blind program at age 55 years, so this was selected as the minimum age for participation. A survey was conducted with two primary goals in mind: (a) to identify the most important needs and challenges experienced and (b) to allow seniors themselves to prioritize critical training needs for people they interact with that would have the biggest impact on the quality of their lives. The results of

the survey will be used to develop a training curriculum to improve the skills and knowledge of people who interact with seniors with dual sensory loss.

## **Method**

### **Survey Development**

The research team met to discuss the specific information that was needed from the survey and questions were developed to address the goals of the study. An initial draft of the survey was developed based on the existing literature and input from an expert panel consisting of three professionals in the deaf-blindness field who work with seniors with dual sensory loss. The initial draft was pilot tested with seven seniors with dual sensory loss. A focus group with these same seniors was also conducted, to discuss needs and challenges they had encountered associated with their sensory losses and their responses/reactions to survey items. Several items on the survey and the directions were modified based on the pilot test and focus group responses. The revised survey was pilot tested over the telephone with two people: a senior with dual sensory loss and a family member of a senior with dual sensory loss (as we expected family members to take or help complete surveys for some seniors). A final pilot test of the other survey formats to be used (electronic, braille, large print) was conducted. Some minor changes to the instructions were made based on these rounds of pilot testing.

### **Survey Items**

The survey consisted of twelve open-ended and multiple choice questions, in addition to demographic and disability-specific questions. Information about the greatest challenges, most valuable services received, which service providers most need training, and what information or skills they need was obtained in an open-ended format. Information about the three most important needs, services used, services needed but not received due to hearing and vision loss,

and additional groups that need education about dual sensory loss was all collected in a multiple choice format. A list of 20 potential important needs was developed by the research team in collaboration with the expert panel, with needs identified based on the literature, the experts' professional experiences, and results of the researchers' previous study with this population.

### **Survey Formats**

Survey participants had the option of completing the survey in one of five formats: online, braille, large print, regular print, or by phone. A majority of participants completed the survey online (48.1%) or by telephone (26.7%). Smaller percentages completed a hard copy version: 16.0% large print, 5.3% regular print, and 3.8% braille.

### **Participants**

A total of 131 older adults with dual sensory loss participated in the study. Individuals were recruited from multiple places including participants in a previous study (49.6%), the Helen Keller National Center for Deafblind Youth and Adults (HKNC; 22.9%), and consumer publications and listservs (14.6%). The additional 13.0% of participants learned about the survey from other sources. This research study received approval from Mississippi State University's Institutional Review Board and informed consent was obtained from all participants.

The average age of respondents was 69.94 (SD=10.90) with a range of 55 to 99. Additional demographic and disability information is provided in Table 1. Participants reported when they experienced hearing and vision loss at three broad age groups: between birth and 21 years, between 22 and 54 years, and at 55 years or older. A large majority of participants experienced one or both sensory losses before age 22, while very few experienced both losses at 55 or older (see Table 2). We divided participants into three onset age groups to evaluate

differences in responses: (a) both sensory losses before age 22 (n=38, 29%), (b) one sensory loss before age 22 (n=57, 43.5%), and (c) both sensory losses after age 21 (n=36, 27.5%).

Participants were asked to describe their primary means of communicating expressively and receptively. Most participants (82.4%) reported they communicate expressively using speech (verbally), 10.7% use sign language or the manual alphabet, 1.5% use writing, 4.6% use multiple methods, and 0.8% declined to answer. Most participants (65.7%) use verbal communication (listening) to receive information, 10.7% use visual or tactual sign language, 3.1% receive information by lip reading, 2.3% read Braille, 1.5% read print, 1.5% use the manual alphabet, 10.7% chose more than one method, 3.1% reported other receptive communication methods (such as email and computer), and 1.5% declined to answer.

### **Data Analysis**

Open-ended responses were independently coded by two of the authors and inconsistencies in codes were discussed until agreement was reached. Descriptive statistics were used to analyze all data. Comparisons of responses by age of sensory loss onset group (both early, one early, both later, as defined under participants) were also conducted, with relevant differences noted in the results.

## **Results**

### **Greatest Challenges**

Over half of all seniors (59.5%) identified more than one challenge or made a generalized response, such as “too numerous to mention.” The most frequently identified challenge was communication; this included both those who mentioned difficulties understanding and being understood (33.6%) and those who specifically mentioned difficulty in public or crowded places (10.7%). Transportation, including being unable to drive, was identified as a challenge by 26.7%

of the participants and another 16.8% identified mobility issues as a challenge. The inability to access print was reported as a challenge by 18.3% of the seniors, and was a greater problem for those in the one early or both later onset groups. Completing tasks that require interacting in the community or with service providers was identified as a challenge by 13.7% of the respondents, and was particularly a concern for those in the early onset groups. See Table 3 for a list of all challenges, overall and by group.

### **Most Important Needs**

The top participant needs were identified based on 15% or more of the respondents identifying the need as one of their top three, from a provided list of 20 needs. Seven needs met the 15% threshold for the overall group, and they are listed in order from highest to lowest percentage in Table 4, along with percentages identifying the needs based on age of onset. The most commonly identified need was transportation, which was also the most commonly identified need for those with early onset of one or both sensory losses. Importance of the other needs differed somewhat by age of onset, particularly for those with later onset. Training to use technology (specific technology examples listed were computer, iPad and cellular telephone) was the second and third most identified need for the both early onset group and the one early onset group, respectively, but was tied for fifth for the later onset group. Information about devices to improve hearing was the most important need for the later onset group, followed by information about devices to improve vision (25.7%,  $n = 9$ ) and better ability to communicate with family (25.7%,  $n = 9$ ). Needs that were particularly important for the both early onset group, but not the other onset groups, were information to help self-advocate (18.4%,  $n=7$ ) and someone to help with communication out in the community (18.4%,  $n=7$ ).

### **Services Needed But Not Received**



Participants were asked what services they use from a list of 21 services, as a lead-in to the question of interest, which was whether they need the services but do not receive them because of their hearing and vision loss. The responses to services used and services needed but not received are provided in Table 5. Although the question specifically asked about services not received due to hearing and vision loss, we cannot be sure that participants responded in this way. Only four services had 15% or more of respondents that indicated they needed but did not receive them: transportation (31.6%), older blind program (20.5%), volunteers to assist with daily activities or errands (18.8%), and senior center (15.4%). It is relevant to note that additional people reported a need for services from the Department of Blind Services and/or the Department of Deaf Services, for a total of 23.9% that needed rehabilitation services.

Persons with later onset were less likely to need volunteers to assist with daily activities or errands (10% versus 18.2% [both early] and 24.1% [one early]) and less likely to need Older Blind Program services (13.3% versus 24.2% [both early] and 22.2% [one early]). Participants in the both early onset group were more likely to report a need for hearing aid sales and services (18.2% versus 5.6% [one early] and 10.0% [later]) and low vision services (15.2% versus 5.6% [one early] and 3.3% [later]).

### **Need for Training or Education about Combined Hearing and Vision Loss**

When asked, “Of the people that provide services to you, who most needs training or education about combined hearing and vision loss?” seniors were most likely to say medical providers (34.4%). Some seniors (12.2%) did not specify a particular provider but made responses like “everyone” or “all of them.” Rehabilitation providers were identified by 10.7% of the seniors and people who provide personal assistance were identified by 6.9%, including 4.5% who specifically mentioned their support service providers (SSPs). Other service providers who

need training were community members, including store clerks, cashiers, etc. (6.1%); transportation providers (4.6%); and telephone callers (1.5%). Almost one-third (30.5%) of the seniors did not identify any service provider in need of additional training.

Besides service providers, participants thought that several other people or groups that they encounter could benefit from education about combined hearing and vision loss. A majority of participants thought that their local community members (59.5%), their friends (56.9%), and their families (56.0%) needed education. A smaller percentage thought members of their church or community of faith (45.6%) needed education. People who experienced both sensory losses early were much less likely to think their family members needed education (38.2% compared to 57.1% [one early] and 72.7% [later]), while people in the later onset group were much less likely to think their local community members needed education (39.4% compared to 64.7% [both early] and 69.4% [one early]).

### **Service Provider Information or Skills Needed**

After being asked what service provider most needed training or education about hearing and vision loss, we followed up by asking seniors, “What information or skills do you want these service providers to have?” The most frequently cited specific area among all three age of onset groups concerned awareness to issues about dual sensory loss (48.9%). This awareness included comments regarding sensitivity or understanding of the process and its impact and the assumptions people make about dual sensory loss. Example comments are: “How to empower a deaf-blind adult and not unintentionally over-provide support.” and “How to relate to me without sacrificing my dignity. For example, I don’t want them pushing and pulling on me.”

Seniors also cited how to communicate (32.1%) as an area where service providers need education or training: “I would like them to touch me when they talk with me and not just come

in the room and talk; that makes me jump.” and “Learn how to communicate by getting a person’s attention FIRST. ID yourself, look directly at the person, and speak up clearly and not too fast.” Training about how to interact with them was an area identified by 19.8% of seniors. Comments included issues like having patience and treating them appropriately: “Respect for those disabled with visual/hearing and not get so frustrated with the disabled due to slowness and being easily confused” and “Help me with what is around me and talk with me not just my caregiver.” Other training/education areas identified were how to get the seniors more services (13.7%) and getting and providing materials in accessible formats (6.9%).

### **Discussion**

Transportation is clearly an issue for this population. It was the most commonly reported important need, one of the most identified challenges, and the most frequently reported service that was needed but not received. Addressing transportation needs has important practice implications as lack of transportation may exacerbate feelings of isolation that communication barriers may create. Service providers should be aware that transportation may be an important need for seniors with dual sensory loss, and should work with them to develop solutions to this problem if needed. See the authors’ website (<http://blind.msstate.edu/our-products/transportation/>) for a transportation guide and transportation plan that can be used to work with consumers to solve transportation problems. Additionally, the possibility of providing orientation and mobility training to seniors with dual sensory loss to maximize their safety and independence with travel should be explored.

Another important need identified by respondents was training to use technology. With advancements in technology and the preponderance of technology in our daily lives, and its potential to expand the communication options for people with dual sensory loss, it is not

surprising that many in our sample would like to learn more about how to use these technologies. This is an important area of need that may not always be addressed by service providers for this population, as other more basic needs may take precedence. Although difficulty accessing some technology may exist due to sensory losses, technology can offer much to this population and it is positive that a relatively large percentage of our sample has the desire to learn. As one participant stated: “Learning to use the iPad has opened up a whole new world to me.”

Training to use technology was particularly important for persons with early onset of both sensory losses. This group may have had greater experience using technology from a younger age and be more aware of the possibilities available. Persons who experience sensory loss later in life may be less familiar with the assistive technology that could accommodate their sensory losses, and unaware that technology could address challenges such as inability to access print, one of this group’s most commonly mentioned challenges. Service providers should be aware that individuals with later onset of sensory losses may need more guidance in the utility of technology (including assistive technologies) and encouragement for their use.

Not surprisingly, communication was the most frequently identified challenge associated with dual sensory loss. Capitalizing on the desire of some seniors to learn more about technology may be one method to address communication issues among this population. Better ability to communicate with various groups was also a commonly identified need, although the group that presented communication challenges differed by age of onset. For the later onset group, a great need was better communication with family, while this was a limited need for the early onset groups. Both early onset groups had a greater need for ability to communicate with service providers and community members than the later onset group. For sign language users, greater access to interpreter services may be one solution to facilitating communication with groups such

as service providers and community members. Seniors with dual sensory loss may also benefit from learning accessible communication methods such as touch signals or haptics.

Seniors' beliefs about others' needs for education/training about dual sensory loss also differed along the same lines, with a larger percentage of the later onset group identifying their families as needing education and a lower percentage identifying community members as needing education. Families may be more likely to learn about sensory losses and develop effective methods of communication when onset occurs in youth, but need more assistance in these areas when onset occurs later. Service providers should be cognizant of these potential problems, and offer to provide education and suggestions for communication to family members of consumers who have later onset of sensory losses. The differences in the education/training needs of community members based on onset group may indicate that seniors with later onset of sensory losses are less often out in the community. This is supported by the fact that fewer report needs for transportation and rehabilitation services and fewer reported challenges with community interactions. Service providers should be aware that those with later onset may have self-limited their activities and should inquire about their interest in greater community participation.

Other differences based on onset group included a greater need by the later onset group for learning about devices to improve hearing and vision. This may be associated with the fact that this group had a larger percentage with mild or moderate losses, but it also may indicate that this group is more interested in retaining/regaining use of their senses to the greatest extent possible, rather than learning alternative techniques (such as use of technology or alternative communication modalities). Participants in the both early onset group were much more likely to report that they needed hearing aid sales/service and low vision services but were not receiving

these services. The difficulty in receiving these services may be associated with their more severe level of vision and hearing loss, as these providers may not accommodate the loss of the other sense well. Persons in the both early onset group also had more trouble with getting help when needed and were more likely to report a need for someone to take them out in the community, both of which indicate that this group may be less likely to have a good support system.

Another important finding is the relatively high percentage of respondents who reported that they needed rehabilitation services but were not receiving them. These services are available in each state, and respondents should all have access to them. It is not certain whether the respondents were not aware of service availability or if their sensory losses made use of the services problematic, as respondents were asked to choose from a list which services they need but did not receive because of their sensory losses. It is relevant that 10.7% reported that rehabilitation providers were the service providers most in need of education/training, which indicates that some have had negative experiences with these providers. These findings support the importance of outreach to this population, to ensure they are aware of rehabilitation services available, and of educating providers in rehabilitation programs that focus on one sensory loss about how to work with consumers with dual sensory loss.

The most common response regarding which service provider most needs education or training was medical providers. This is important because the ability to communicate symptoms and concerns as well as the ability to understand and comply with medical advice are integral to good health and independence, particularly in older age. If one experiences challenges communicating with health care providers, medical issues may not appropriately be addressed, which could result in serious health problems. Healthcare providers are clearly an important

group to target for education regarding how to interact with persons with combined hearing and vision loss.

### **Limitations**

Participants were primarily recruited through agencies and organizations associated with service delivery or support to persons with sensory loss. Consequently, this volunteer sample is largely comprised of people who are more connected into services by organizations for people with sensory loss. Contact with service delivery systems could have influenced participant responses as people who have received these types of services may have different experiences and additional information/resources. This sample also contains a disproportionate number of persons who acquired their dual sensory loss before age 22. These two factors indicate that the sample is not reflective of the population of persons with dual sensory loss that is concentrated largely in the population aged 80 and older. Researchers attempted to accurately code and categorize participant responses. Use of multiple coders promotes accuracy but the potential that coders misinterpreted responses exists. Despite these limitations, this data provides a first look at seniors' perspectives regarding which service delivery providers and community members are most in need of training and education about dual sensory loss and gives us current data regarding seniors' challenges and needs.

### **Training Implications**

Senior citizens comprise the largest demographic of those with dual sensory loss, yet it is often difficult to provide information, supports, and services to them as many do not self-identify or seek services specific to their sensory losses. They continue to need services in the community, and most general service providers and community members are not aware of how to interact with them effectively. Training materials will be developed based on what seniors in

this survey prioritized as their biggest needs and the training needs of service providers. It is our hope that the materials developed and disseminated in response to this survey will improve the quality of life for senior adults experiencing combined hearing and vision loss, and that they will once again be able to access their community with respect, dignity, and self-determination.



**Acknowledgement**

This research was supported through a sub-award from the Helen Keller National Center for Deaf-Blind Youths and Adults (HKNC). Funding was provided to HKNC by The Helmsley Charitable Trust.

### References

- Brennan, M., Su, Y.-P., Horowitz, A. (2006). Longitudinal associations between dual sensory impairment and everyday competence among older adults. *Journal of Rehabilitation Research & Development*, 43(6), 777-792. doi: 10.1682/JRRD.2005.06.0109
- Brossoie, N., Roberto, K.A, Willis-Walton, S., & Reynolds, S. (2010). Report on baby boomers and older adults: Information and service needs. Blacksburg, VA: Virginia Polytechnic Institute and State University, Center for Gerontology.
- Caban, A.J., David J.L., Gomez-Marin, O., Lam, B.L., & Zheng, D.D. (2005). Prevalence of Concurrent Hearing and Visual Impairment in US adults: The National Health Interview Survey, 1997-2002. *American Journal of Public Health*, 95(11), 1940-1942.
- Chou, K.-L. (2008). Combined effect of vision and hearing impairment on depression in older adults: Evidence from the English longitudinal study of ageing. *Journal of Affective Disorders*, 106(1-2), 191-196. doi: 10.1016/j.jad.2007.05.028
- Fischer, M.E., Cruickshanks, K.J., Klein, B.E.K., Klein, R., Schubert, C.R., & Wiley, T.L. (2009). Multiple sensory impairment and quality of life. *Ophthalmic Epidemiology*, 16(6), 346-353. doi: 10.3109/09286580903312236
- Heine, C. & Browning, C.J. (2002). Communication and psychosocial consequences of sensory loss in older adults: Overview and rehabilitation directions. *Disability and Rehabilitation*, 24(15), 763-773.
- Kiely, K.M., Anstey, K.J., & Luszcz, M.A. (2013). Dual sensory loss and depressive symptoms: The importance of hearing, daily functioning, and activity engagement. *Frontiers in Human Neuroscience*, 7, 1-13. doi: 10.3389/fnhum.2013.00837

McDonnall, M.C. (2009). The effects of developing a dual sensory loss on depression in older adults: A longitudinal study. *Journal of Aging and Health, 21*(8), 1179-1199. doi:

10.1177/0898264309350077

McDonnall, M.C. (2011). The effect of productive activities on depressive symptoms among older adults with dual sensory loss. *Research on Aging, 33*(3), 234-255. doi:

10.1177/0164027511399106

Saunders, G.H. & Echt, K.V. (2007). An overview of dual sensory impairment in older adults: Perspectives for rehabilitation. *Trends in Amplification, 11*(4), 243-258.

Schneider, J.M., Gopinath, B., McMahon, C.M., Leeder, S.R., Mitchell, P., & Wang, J.J. (2011). Dual sensory impairment in older age. *Journal of Aging and Health, 23*(8), 1309-1324.

Swenor, B.K., Ramulu, P.U., Willis, J.R., Friedman, D., & Lin, F.R. (2013). The prevalence of concurrent hearing and vision impairment in the United States. *JAMA Internal Medicine, 173*(4), 312-313. doi: 10.1001/jamainternmed.2013.1880

Table 1

Demographics of Respondents Overall and by Age of Onset Group

Demographic	Overall (N=131)	Both Early Onset <sup>a</sup> (n=38)	One Early Onset <sup>b</sup> (n=57)	Both Later Onset <sup>c</sup> (n=36)
<b>Gender</b>				
Male	38.2	44.7	40.4	72.2
Female	61.8	55.3	59.6	27.8
<b>Race/Ethnicity</b>				
White	88.6	89.5	84.2	94.4
African American	3.8	2.6	5.3	2.8
Hispanic	0.8	0.0	1.8	0.0
American Indian	3.1	0.0	5.3	2.8
Mixed Race	1.5	2.6	1.8	0.0
Unknown	2.3	5.3	1.8	0.0
<b>Level of Hearing Loss</b>				
Mild	19.1	13.2	21.1	19.4
Moderate	39.7	23.7	43.9	50.0
Severe	20.6	36.8	10.5	19.4
Profound (or Deaf)	19.1	26.3	21.1	8.3
Unknown	1.5	0.0	1.8	0.0
<b>Level of Vision Loss</b>				
Visually Impaired	13.7	5.3	17.5	16.7
Legally Blind	51.2	52.6	40.4	66.7
Totally Blind or Light Perception Only	33.6	39.5	40.4	16.7
Unknown	1.5	2.6	1.8	0.0
<b>Living Situation</b>				
Private Residence, Living Alone	35.9	31.6	38.6	36.1
Private Residence, Living with Spouse or Others	53.4	55.3	56.1	47.2
Retirement/Assistive Living Facility	7.6	5.3	3.5	13.9
Unknown	0.8	2.6	0.0	0.0
<b>Region</b>				
Northeast	14.5	15.8	14.3	13.9
Midwest	29.8	42.1	23.2	25.0
South	34.4	29.0	32.1	44.4
West	21.4	13.2	30.4	16.7

<sup>a</sup>Both early onset – both sensory losses before age 22<sup>b</sup>One early onset – one sensory loss before age 22<sup>c</sup>Both later onset – both sensory losses after age 21

Table 2

Ages Respondents Experienced Hearing and Vision Loss (in Percentages)

Age of Hearing Loss	Age of Vision Loss					
	Between Birth and 21 Years		Between 22 and 54 Years		55 Years or Older	
	<i>n</i>	Percent	<i>n</i>	Percent	<i>n</i>	Percent
Between Birth and 21 Years	38 <sup>a</sup>	29.0	24 <sup>b</sup>	18.3	3 <sup>b</sup>	2.3
Between 22 and 54 Years	17 <sup>b</sup>	13.0	11 <sup>c</sup>	8.4	3 <sup>c</sup>	2.3
55 Years or Older	13 <sup>b</sup>	9.9	8 <sup>c</sup>	6.1	14 <sup>c</sup>	10.7

<sup>a</sup>Both early onset – both sensory losses before age 22<sup>b</sup>One early onset – one sensory loss before age 22<sup>c</sup>Both later onset – both sensory losses after age 21

Table 3

List of Challenges, Overall and by Age of Onset Group

Challenges	Overall (N=129)	Both Early Onset <sup>a</sup> (n=38)	One Early Onset <sup>b</sup> (n=56)	Both Later Onset <sup>c</sup> (n=35)
Multiple	59.5	47.4	61.4	58.3
Communication (trouble understanding/being understood)	33.6	36.8	28.1	38.9
Transportation/Travel	26.7	26.3	28.1	25.0
Inability to access print	18.3	5.3	21.1	27.8
Mobility	16.8	18.4	12.3	22.2
Interacting in community	13.7	15.8	17.5	5.6
Hearing loss or vision loss	11.5	10.5	10.5	13.9
Communication (in public/crowded places)	10.7	5.3	12.3	13.9
Lack of independence/Feeling like a burden	8.4	7.9	8.8	8.3
Attitudes of others	8.4	5.3	12.3	5.6
Coping with/Acceptance of sensory loss	7.6	10.5	8.8	2.8
Getting help when needed	6.9	13.2	5.3	2.8
Socializing	6.9	7.9	1.8	13.9
Isolation	6.4	7.9	5.3	5.6
Employment	5.3	2.6	5.3	8.3
Technology	4.6	7.9	3.5	2.8
Inability to recognize faces	3.1	5.3	1.8	8.3
High cost of hearing aids	2.3	0.0	3.5	2.8

<sup>a</sup>Both early onset – both sensory losses before age 22<sup>b</sup>One early onset – one sensory loss before age 22<sup>c</sup>Both later onset – both sensory losses after age 21

Table 4

Percentage of Respondents Identifying Specific Needs, Overall and by Age of Onset Group

Need	Overall (N=129)	Both Early Onset <sup>a</sup> (n=38)	One Early Onset <sup>b</sup> (n=56)	Both Later Onset <sup>c</sup> (n=35)
Transportation	39.5	44.7	46.4	22.9
Training to use technology	31.8	42.1	32.1	20.0
Assistance with errands	24.8	21.1	35.7	11.4
Better ability to communicate with service providers or others in community	17.8	21.1	21.4	8.6
Better ability to communicate with healthcare providers	16.3	13.2	16.1	20.0
Information about devices to improve hearing	16.3	10.5	12.5	28.6
Activities to participate in each day	16.3	10.5	17.9	20.0

<sup>a</sup>Both early onset – both sensory losses before age 22<sup>b</sup>One early onset – one sensory loss before age 22<sup>c</sup>Both later onset – both sensory losses after age 21

Table 5

Percentages who Use Services and who Need but Do Not Receive Services

Service	Use service <sup>a</sup>	Need service, but do not receive <sup>b</sup>
Medical treatment	90.1	2.6
Ophthalmology	61.1	2.6
Audiology	61.1	8.6
Library services	58.8	6.0
Hearing aid sales	53.4	10.3
Transportation	47.3	31.6
Community of faith	42.0	12.8
Department of blind services	31.3	6.8
Low vision services	29.8	7.7
Support service providers (SSPs)	29.0	—
Older blind program	22.1	20.5
Volunteers to assist with daily activities or errands	19.9	18.8
Interpreter services	15.3	5.1
Service coordination	14.5	12.0
Senior center	13.0	15.4
Personal care attendant	12.2	3.4
Home health nurse	12.2	0.9
Department of deaf services	10.7	9.4
Counseling	9.9	11.1
Diabetic education	9.9	4.3
Meals on Wheels	7.6	4.3
Veterans services	5.3	0.9

<sup>a</sup>N=131; <sup>b</sup>N = 117